SYSTEM AND METHOD FOR AUTOMATED DATABASE ASSISTANCE TO FINANCIAL SERVICE OPERATORS

FIELD OF THE INVENTION

The invention relates to the field of information processing, and more particularly to the deployment of integrated, interrogatable information services for call center and other personnel providing realtime financial information and support to customers.

BACKGROUND OF THE INVENTION

The increasing size and liquidity of the financial capital and other markets has placed increasing demands on financial support infrastructure. Companies offering mutual fund, brokerage, retirement and other portfolio accounts and services find it necessary to make investment information readily accessible to their customers and to potential new customers, in order to stay competitive in the marketplace. In the case of mutual fund services, accessing and relating any one of the multiple categories of information which a customer or potential customer may inquire about is particularly difficult, let alone in realtime.

This is in part because mutual funds typically maintain and must make available a whole spectrum of associated information, such as investment fund types, yields, returns, dividend, cost information, constituent equities, redemption policies, state and federal taxes and other data. A mutual fund company offering an (800) number to reach a call center dial-up facility to handle existing and potential client inquiries may find that fielding and satisfying random questions about any combination of those sets of information is a difficult challenge.

For instance, an existing customer may call in and ask whether shifting their allocated investment fund balance to another type of fund, such as a tax-free municipal or other fund, would affect their federal income tax rate. With existing call center systems, service operators may have access to a computer workstation on which some information may be accessible. However, in those operations at most a subset of the complex of information surrounding the accounts of clientele is stored, and many pieces of information are presented or updated in printed hardcopy format which must be examined by hand while keeping the caller on the line.

This leads to shuffling, backtracking, and delay time as the service operator attempts to string the necessary information together to answer the customer inquiry. Average call hold times and other call center metrics may be degraded, and customer satisfaction may be affected because the data is uncoordinated and can not be assembled in real time. These and other drawbacks exist.

SUMMARY OF THE INVENTION

The invention overcoming these end of the drawbacks in the art relates to a system and method for automated database assistance to financial service operators, in which a transaction server containing an interface to multiple sources of information supports the service operator staffing a call center or other operation. Because a variety of information sources are collected and gated via one access resource, it is no longer necessary for service operators to search for the location of data that a customer may request. Furthermore, since interfaces may be provided to multiple data sources, a range of queries may be carried out against that financial and other information to satisfy customer requests. Call latency is

reduced, efficiency is increased, and the quality and responsiveness of information available to customers is improved.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be described with reference to the accompanying drawings, in which like elements are referenced with like numerals.

Figure 1 illustrates an overall architecture for customer service processing according to one embodiment of the invention.

Figure 2 illustrates a general product hierarchical interface as used by a service operator in one embodiment of the invention.

Figure 3 illustrates a user interface to service operators operating a workstation according to the invention to fulfill client requests.

Figure 4 illustrates a flowchart of inquiry processing according to the invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

An overall architecture for the integrated support of customer service according to the invention is illustrated in Figure 1. As shown in that figure, one or more existing or potential customers 102a . . . 102n may communicate over communications link 104 to an information center 122, to inquire about existing or potential financial or other products. The customer's operating clients 102a ... 102n may be or include, for instance, a personal computer running the Microsoft Windows™ 95, 98, Millenium™, NT™, or 2000, Windows™CE™, PalmOS™, Unix, Linux, Solaris ™, OS/2 ™, BeOS ™, MacOS ™ or other operating system or platform. Clients 102a ... 102n may also be or include a network-enabled appliance such as a WebTV™ unit, radio-enabled Palm™ Pilot or similar unit, a set-top box, a networkable

game-playing console such as Sony Playstation™ or Sega Dreamcast™, a browser-equipped cellular telephone, or other TCP/IP client or other device.

The communications link 104 over which the customers communicate with information center 122 may be, include or interface to any one or more of, for instance, the Internet, an intranet, a PAN (Personal Area Network), a LAN (Local Area Network), a WAN (Wide Area Network) or a MAN (Metropolitan Area Network), a frame relay connection, an Advanced Intelligent Network (AIN) connection, a synchronous optical network (SONET) connection, a digital T1, T3, E1 or E3 line, Digital Data Service (DDS) connection, DSL (Digital Subscriber Line) connection, an Ethernet connection, an ISDN (Integrated Services Digital Network) line, a dial-up port such as a V.90, V.34 or V.34bis analog modem connection, a cable modem, an ATM (Asynchronous Transfer Mode) connection, or FDDI (Fiber Distributed Data Interface) or CDDI (Copper Distributed Data Interface) connections. Communications link 104 may furthermore be, include or interface to any one or more of a WAP (Wireless Application Protocol) link, a GPRS (General Packet Radio Service) link, a GSM (Global System for Mobile Communication) link, a CDMA (Code Division Multiple Access) or TDMA (Time Division Multiple Access) link such as a cellular phone channel, a GPS (Global Positioning System) link, CDPD (cellular digital packet data), a RIM (Research in Motion, Limited) duplex paging type device, a Bluetooth radio link, or an IEEE 802.11-based radio frequency link. Communications link 104 may yet further be, include or interface to any one or more of an RS-232 serial connection, an IEEE-1394 (Firewire) connection, a Fibre Channel connection, an IrDA (infrared) port, a SCSI (Small Computer Systems Interface) connection, a USB (Universal Serial Bus) connection or other wired or wireless, digital or analog interface or connection.

The information center 122 may be or include, for example, a call center operation including an automatic call distributor (ACD) 106 which receives incoming client communications over the communications link 104 for distribution to one or more service workstations 108a ... 108n over communications link 124. Each of the service workstations 108a . . . 108n may be or include similar hardware of platforms as the clients 102a ... 102n. The service workstations 108a ... 108n may be operated by human attendants who may view service interface 120 on a computer screen or other viewable or audible interface to direct and answer customer inquiries. Each of the service workstations 108a ... 108n may include storage 124 such as a hard disk, a removable magnetic disk, an optically readable disk, or other media.

In the illustrated architecture according to the invention, each of the service workstations 108a ... 108n may be connected to a transaction server 112 via communications link 110. The transaction server 112 may be or include, for instance, a workstation running the Microsoft Windows™ NT™, Windows™ 2000, Unix, Linux, Xenix, IBM AIX™, Hewlett-Packard UX™, Novell Netware™, Sun Microsystems Solaris™, OS/2™, BeOS™, Mach, Apache, OpenStep™ or other operating system or platform. The transaction server 112 serves as a gateway to one or more information sources 116a ... 116n communicating with transaction server 112 via communications link 114. The information sources 116a ... 116n may include, for example, the commercial Lipper™, Bisys™, Morning Star™, Performance Group™, Research Group™, or other database, on-line or other sources of financial or other information.

Each of the information sources 116a ... 116n may generate and communicate the same or different types of information, such as equity information, debt instrument information, tax information, or others. The transaction server 112 may include or

communicate with a local database 118, to which transaction server 112 may store intermediate search results and other information. Unlike prior service infrastructures in which each of the service workstations 108a ... 108n may have been connected to information sources directly and independently and in an uncoordinated manner, the transaction server 112 coordinates and localizes the interface to a variety of information sources of interest to mutual fund and other consumers. The attendants staffing the information center 122, therefore, have access to a unified interface to a number of information sources, any one or more of which may be interrogated and compared against customer investment criteria or profiles to satisfy client inquiries.

Upon receipt of a new customer inquiry from one of clients 102a ... 102n, an attendant may receive the incoming telephone call via automatic call distributor 106 or other contact and call up a non-product specific interface 242 on service interface 120, such as the hierarchical interface illustrated in Figure 2. As shown in that figure, the attendant operating the service work station 108a ... 108n may view a variety of high-level categories of information that may be used to service the client inquiry, below which lower-level categories may be accessed to respond to specific client needs. As illustrated in Figure 2, the high-level categories may include product basics 202, B/D information 204, operations information 206, respective information 208, federal tax information 210 and team listing default information 220.

Many customer inquiries may be responded to quickly with upper-level information obtained by clicking or otherwise activating any one or more of the information categories, such as product basics 202 to advise a customer on the line concerning basic varieties of investment strategy or other financial profiles. However, advantageously in the invention further subcategories are immediately available to the attendant, affording the ability to drill

down into further levels of categories of information, such as more detailed tax information below the federal tax information 210. As illustrated in Figure 2, that subcategory of information may include state tax information 212, miscellaneous tax information 214, historical tax information 216 and tax forms mailing schedule 218, all of which may be visible on service interface 120 upon clicking or other action by the attendant.

Therefore, if the customer inquires whether a particular fund or other investment will be taxable at state or local levels, the service attendant operating the user interface 120 according to the invention may drill down through federal tax information 210 and other levels quickly and conveniently answer the question, without the need to resort to manual retrieval.

Similarly, the service attendant may be provided with other options on the user interface 120, such as a print report option 228 giving the service attendant the ability to call up, fax, email, print or otherwise process a variety of information including a daily information report 230, a team listing report 232, a month data report 234 and a monthly portfolio status report 236 for reference, mailing to the customer or for other use. The user interface 120 may likewise as illustrated in Figure 2 give the service attendant the option to return to fund information 238 after drilling down to subcategory levels, or present a clickable link to the last fund interface that the service attendant located 240, for ease of retracing and navigation. Moreover, under the team listing default information 220, further information such as RIS information 222, independent information 224 and a print team listing report 226 may be made available.

The set of categories of information provided to service attendants processing customer inquiries is extensible, and various subcategories of information may be added to or modified as well. Since as illustrated in Figure 1 the service interface 120 presented on

service workstation 108a ...108n may access information by way of a unified transaction server 112, all sources of information may be incorporated or linked in the interface and made available to the attendants for realtime interrogation and response to inquiries.

As illustrated in Figure 3, the service interface 120 may be present the service attendant with a variety of detailed information on individual mutual fund or other searchable, particular financial products in response to specific inquires. As shown in Figure 3, an attendant at service workstation 108a ... 108n may click to a fund-specific information page containing a variety of information fields related to that particular product, for example including a fund tree 304 indicating species of funds available within a given provider, a pricing and yield seal 306 to indicate net asset value (NAV) and other information, a yield field 308 to indicate percent returns, a break point field 310 to indicate various investment levels and a winkable product basic 312 to indicate further available information for that product.

That further information may include tax information or a prospectus for potential customers who may receive such information before purchase activity. The information shown in product-specific interface 302 or generated elsewhere in the invention may be related to the customer waiting on client 102a ... 102n verbally by telephone, via e-mail, pager, portable network device or other media. The information presented in the product-specific interface 302 may be generated by or accessed from one or more of the information sources 116a ... 116n via the transaction server 112 when interrogated by service workstation 108a ... 108n operated by the client servicing attendant. Any one or more of the fields shown in product-specific interface 302 may be linkable to other levels or information sources, such as to obtain more detailed information, information over a longer or different period of time or to access related information such as other funds or product families.

However, since all such information is channeled through and presented by service interface 120, the service attendant is relieved of the necessity to manually locate or correlate the information being related.

An overall flow chart of processing according to the invention is illustrated in Figure 4. In step 402, processing begins. In step 404, a service attendant logs in and/or is authenticated to operate the service workstation 108a ... 108n on which their working. In step 406, a service inquiry may be received from a client via the automatic call distributor 106. In step 408, the service attendant may interact with customer to determine the nature and details of their inquiry. In step 410, the service attendant may navigate to an appropriate location on service interface 120, such as to non-product specific interface 242 or product-specific interface 302. In step 412, service attendant may execute a service query via the transaction server 112 according to the customer's questions.

In step 414, the transaction server 112 may interrogate one or more of the information sources 116a ... 116n to satisfy the query of step 412. In step 416, the results may be displayed on service interface 120 and reported to the customer via their client 102a ... 102n. In step 418, the query results or other information may be stored, for instance in storage 124 of the service workstation 108a ... 108n or in local database 118 of transaction server 122 for further use or modification. In step 420, the service attendant may navigate to service screen for query modification, as necessary. In step 422, the service attendant may operate the service workstation 108a ... 108n to interrogate or modify the queried information, such as via storage 124, local database 118 or via information sources 116a ... 116n. In step 424, the service attendant may communicate results to a next-stage provider as necessary, such as to hand off the customer and their inquiry to a security broker or other party. In step 426, the

call is terminated and the automatic call distributor 106 frees up the workstation for a new event. In step 428, processing ends.

The foregoing description of the system and method of the invention is illustrative, and variations in configuration and implementation will occur to persons skilled in the art. For instance, while the invention has been described in terms of a architecture in which a single transaction server 112 acts as a gateway to multiple information sources, the transaction server processing may be distributed amongst different computing resources, within or without information center 122, cooperating to provide an integrated port to the information center 122. Likewise, while the invention has generally been described with respect to financial products and specific mutual fund data hierarchies, other product types may be serviced according to the infrastructure of the invention. The scope of the invention is accordingly intended to be limited only by the following claims.